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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,691	02/15/2002	Mark Unrath	50001/84:2	1445

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EXAMINER	
ALLEN, DENISE S	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/077,691	Applicant(s) UNRATH ET AL.	
	Examin r Denise S Allen	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-9,11-20 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-9,11-20 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

In light of the Applicant's cancellation of claims 6, 10, 21, and 23 – 27 on October 23, 2003 (paper #9), all objections/rejections to claims 6, 10, 21, and 23 – 27 in the Office Action on July 21, 2003 (paper #7) has been withdrawn.

Response to Arguments

In the Applicant's response on October 23, 2003 (paper #9), the Applicant argues with respect to claims 1 and 16, that Toda fails to teach or reasonable suggest the laser beam incident on the two-axis steering mirror at or near the pivot point of the mirror as recited in amended claims 1 and 16 (page 6). This argument has been fully considered and found to be persuasive. The Examiner agrees that the pivot point of the two-axis steering mirror of Toda is well behind the mirror surface; therefore the laser beam is not incident at or near the pivot point.

The rejection of claims 1 – 5, 7 – 9, 11 – 20, and 22 under 35 U.S.C. 103(a) as being unpatentable over Cutler et al in view of Toda in the Office Action on July 21, 2003 (paper #7) has been withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 5, 7 – 9, 11 – 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cutler et al in view of Neukermans et al (US 5,629,790).

Regarding claims 1 and 16, Cutler et al teaches an apparatus (Figure 2) for directing a laser beam (reference 60) toward a target location on a workpiece (reference 62) in response to a target location coordinate position command (from reference 72), comprising: a positioner (references 56 and 58) positioning the workpiece and the laser beam relative to one another in response to the coordinate position command; first and second position sensors (reference 122) coupled to the positioner for producing first and second position signals indicative of an actual coordinate position of the positioner (column 9 lines 54 – 56); first and second summing junctions (reference 90) comparing the coordinate position command and the first and second position signals and producing first and second error signals indicative of a difference between the coordinate position command and the actual coordinate position (column 9 lines 56 – 59); a steering mirror controller (reference 88 and Figure 4 reference 104) coupled to at least the first error signal for producing at least a first position correction signal (through references 82 and 84); two one-axis steering mirrors (Figure 4 references 110 and 112) including pivot axes responsive to at least the first position correction signal for receiving the laser beam and deflecting the laser beam toward the target location on the workpiece (path of reference 60) ; and a focusing lens (reference 114) having an entrance pupil located at or near the pivot axis of a steering mirror for receiving and focusing the deflected laser beam on the target location of the workpiece. Cutler et al does not teach a two-axis steering mirror responsive to at least the first position correction signal for receiving the laser beam and deflecting the laser beam toward the target location on the workpiece.

Neukermans et al teaches a single two-axis steering mirror (Figure 12a) with a pivot point on the surface of the mirror used to deflect a laser beam toward a target location. It would have

been obvious to one of ordinary skill in the art at the time of the invention to use the single two-axis steering mirror of Neukermans et al in place of the pair of one-axis steering mirrors of Cutler et al with the laser incident at or near the pivot point (versus the pivot axes of the pair of one-axis steering mirrors) in order to reduce the number of parts in the beam steering mirror assembly.

Regarding claims 2 and 17, Cutler et al teaches the steering mirror controller (Figure 4 reference 106) is coupled to the second error signal for producing a second position correction signal, and in which the two-axis steering mirror is further responsive to the second position correction signal for deflecting the laser beam.

Regarding claims 3 and 18, Cutler et al teaches the coordinate position command includes information for positioning the positioner to respective X-axis and Y-axis orthogonal coordinate locations (column 5 lines 24 – 40).

Regarding claims 4 and 19, Cutler et al teaches the first and second error signals conform to a first coordinate system (i.e. Figure 8B) and the two-axis steering mirror is responsive to a second coordinate system (i.e. Figure 8C), and in which the apparatus further includes a coordinate transform generator for converting at least one of the first and second error signals to the second coordinate system (column 12 lines 23 – 62).

Regarding claims 5 and 20, Cutler et al teaches a second steering mirror controller (reference 86) and in which the target location coordinate position command further includes mirror positioning information, the first and second steering mirror controllers positioning the two-axis steering mirror in response to the mirror positioning information and at least the first position correction signal.

Regarding claim 7, Cutler et al teaches the steering mirror is positioned by at least one piezo electric actuator (column 8 line 66 – column 9 line 3).

Regarding claim 8, Cutler et al teaches the steering mirror is positioned by at least one voice coil actuator (column 8 line 66 – column 9 line 3).

Regarding claims 9 and 22, Cutler et al teaches the positioner scans the workpiece and the laser beam relative to one another in a second axis direction in response to a series of the coordinate position commands while the two-axis steering mirror is responsive to a series of the first position correction signals for receiving the laser beam and deflecting the laser beam toward a set of the target locations on the workpiece (Figures 8A – 8E).

Regarding claim 11, Cutler et al discloses the workpiece includes an integrated memory circuit and in which the target location includes a severable link for removing a defective memory cell (column 1 lines 20 – 35).

Regarding claim 12, Cutler et al discloses the workpiece includes an electronic circuit element that is trimmed to a predetermined performance characteristic by the laser beam (column 1 lines 20 – 35).

Regarding claim 13, Cutler et al teaches the positioner includes stages that are arranged in a stacked configuration (reference 56 is stacked on reference 58).

Regarding claim 14, Cutler et al teaches the positioner includes stages that are arranged in a split-axis configuration (reference 56 is on the X-axis and reference 58 is on the Y-axis).

Regarding claim 15, Cutler et al teaches the positioner includes a planar positioning stage (references 56 and 58).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (703) 305-7407. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (703) 305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Please note that due to the organization where this application or proceeding is assigned relocating to the new USPTO offices in Alexandria, VA, the following new telephone numbers

will be effective on January 21, 2004: Denise S. Allen (571) 272-2305 and Drew Dunn (571) 272-2312.

Denise S Allen
Examiner
Art Unit 2872

dsa

Audrey Chang
Primary Examiner
Technology Center 2800